

*H. Shipping the box:*

a. The railroad must arrange to have the box shipped overnight air express or (if express service is unavailable) by air freight, prepaid, to FRA's designated laboratory. When possible, but without incurring delay, deliver the sealed shipping box directly to the express courier or the air freight representative.

b. If courier pickup is not immediately available at your facility, the railroad is required to transport the sealed shipping box to the nearest point of shipment via air express, air freight or equivalent means.

c. *If the railroad receives the sealed shipping box to arrange shipment*, please record under "Supplemental Information" on the Control Form, the name of the railroad official taking custody.

*I. Other:*

FRA requests that the person taking the specimens annotate the Control Form under "Supplemental Information" if additional toxicological analysis will be undertaken with respect to the fatality. FRA reports are available to the coroner or medical examiner on request.

## PART 220—RAILROAD COMMUNICATIONS

### Subpart A—General

Sec.

- 220.1 Scope.
- 220.2 Preemptive effect.
- 220.3 Application.
- 220.5 Definitions.
- 220.7 Penalty.
- 220.8 Waivers.
- 220.9 Requirements for trains.
- 220.11 Requirements for roadway workers.
- 220.13 Reporting emergencies.

### Subpart B—Radio and Wireless Communication Procedures

- 220.21 Railroad operating rules; radio communications; recordkeeping.
- 220.23 Publication of radio information.
- 220.25 Instruction and operational testing of employees.
- 220.27 Identification.
- 220.29 Statement of letters and numbers in radio communications.
- 220.31 Initiating a radio transmission.
- 220.33 Receiving a radio transmission.
- 220.35 Ending a radio transmission.
- 220.37 Testing radio and wireless communication equipment.
- 220.38 Communication equipment failure.
- 220.39 Continuous radio monitoring.
- 220.41 [Reserved]

220.43 Radio communications consistent with federal regulations and railroad operating rules.

220.45 Radio communication shall be complete.

220.47 Emergency radio transmissions.

220.49 Radio communication used in shoving, backing or pushing movements.

220.51 Radio communications and signal indications.

220.61 Radio transmission of mandatory directives.

APPENDIX A TO PART 220—RECOMMENDED PHONETIC ALPHABET

APPENDIX B TO PART 220—RECOMMENDED PRONUNCIATION OF NUMERALS

APPENDIX C TO PART 220—SCHEDULE OF CIVIL PENALTIES

AUTHORITY: 49 U.S.C. 20102–20103, 20107, 21301–21302, 21304, 21311; 28 U.S.C. 2461, note; and 49 CFR 1.49.

SOURCE: 63 FR 47195, Sept. 4, 1998, unless otherwise noted.

### Subpart A—General

#### § 220.1 Scope.

This part prescribes minimum requirements governing the use of wireless communications in connection with railroad operations. So long as these minimum requirements are met, railroads may adopt additional or more stringent requirements.

#### § 220.2 Preemptive effect.

Under 49 U.S.C. 20106 (formerly section 205 of the Federal Railroad Safety Act of 1970, 45 U.S.C. 434), issuance of the regulations in this part preempts any State law, rule, regulation, order, or standard covering the same subject matter, except a provision necessary to eliminate or reduce an essentially local safety hazard that is not incompatible with this part and that does not unreasonably burden interstate commerce.

#### § 220.3 Application.

(a) Except as provided in paragraph (b) of this section, this part applies to railroads that operate trains or other rolling equipment on standard gage track which is part of the general railroad system of transportation.

(b) This part does not apply to:

(1) A railroad that operates only on track inside an installation which is not part of the general railroad system of transportation; or

(2) Rapid transit operations in an urban area that are not connected with the general railroad system of transportation.

#### § 220.5 Definitions.

As used in this part, the term:

*Adjacent tracks* means two or more tracks with track centers spaced less than 25 feet apart.

*Control center* means the locations on a railroad from which the railroad issues instructions governing railroad operations.

*Division headquarters* means the location designated by the railroad where a high-level operating manager (e.g., a superintendent, division manager, or equivalent), who has jurisdiction over a portion of the railroad, has an office.

*Employee* means an individual who is engaged or compensated by a railroad or by a contractor to a railroad, who is authorized by a railroad to use its wireless communications in connection with railroad operations.

*Immediate access* to a radio means a radio on the employee's person, or sufficiently close to the employee to allow the employee to make and receive radio transmissions.

*Joint operations* means rail operations conducted by more than one railroad on the track of a railroad subject to the requirements of § 220.9(a), except as necessary for the purpose of interchange.

*Locomotive* means a piece of on-track equipment other than hi-rail, specialized maintenance, or other similar equipment—

(1) With one or more propelling motors designed for moving other equipment;

(2) With one or more propelling motors designed to carry freight or passenger traffic, or both; or

(3) Without propelling motors but with one or more control stands.

*Lone worker* means an individual roadway worker who is not being afforded on-track safety by another roadway worker, who is not a member of a roadway work group, and who is not engaged in a common task with another roadway worker.

*Mandatory directive* means any movement authority or speed restriction that affects a railroad operation.

*Railroad operation* means any activity which affects the movement of a train, locomotive, on-track equipment, or track motor car, singly or in combination with other equipment, on the track of a railroad.

*Roadway worker* means any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and watchmen/lookouts.

*System headquarters* means the location designated by the railroad as the general office for the railroad system.

*Train* means one or more locomotives coupled with or without cars, requiring an air brake test in accordance with 49 CFR part 232 or part 238, except during switching operations or where the operation is that of classifying and assembling rail cars within a railroad yard for the purpose of making or breaking up trains.

*Working radio* means a radio that can communicate with the control center of the railroad (through repeater stations, if necessary to reach the center) from any location within the rail system, except:

(1) Tunnels or other localized places of extreme topography, and

(2) Temporary lapses of coverage due to atmospheric or topographic conditions. In the case of joint operations on another railroad, the radio must be able to reach the control center of the host railroad.

*Working wireless communications* means the capability to communicate with either a control center or the emergency responder of a railroad through such means as radio, portable radio, cellular telephone, or other means of two-way communication, from any location within the rail system, except:

(1) Tunnels or other localized places of extreme topography, and

(2) Temporary lapses of coverage due to atmospheric or topographic conditions. In the case of joint operations on another railroad, the radio must be

## **§ 220.7**

able to reach the control center of the host railroad.

[63 FR 47195, Sept. 4, 1998, as amended at 65 FR 41305, July 3, 2000]

### **§ 220.7 Penalty.**

Any person (including but not limited to a railroad; any manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least \$550 and not more than \$11,000 per violation, except that: Penalties may be assessed against individuals only for willful violations; where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury, or has caused death or injury, a penalty not to exceed \$27,000 per violation may be assessed; and the standard of liability for a railroad will vary depending upon the requirement involved. Each day a violation continues shall constitute a separate offense. (See appendix C to this part for a statement of agency civil penalty policy.)

[63 FR 47195, Sept. 4, 1998, as amended at 69 FR 30593, May 28, 2004]

### **§ 220.8 Waivers.**

(a) Any person subject to a requirement of this part may petition the Administrator for a waiver of compliance with such requirement. The filing of such a petition does not affect that person's responsibility for compliance with that requirement while the petition is being considered.

(b) Each petition for waiver must be filed in the manner and contain the information required by part 211 of this chapter.

(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary.

## **49 CFR Ch. II (10–1–06 Edition)**

### **§ 220.9 Requirements for trains.**

(a) Except as provided for in paragraphs (b)(1) through (4) of this section, on and after July 1, 1999, each occupied controlling locomotive in a train shall have a working radio, and each train shall also have communications redundancy. For purposes of this section, "communications redundancy" means a working radio on another locomotive in the consist or other means of working wireless communications.

(b) On and after July 1, 2000, the following requirements apply to a railroad that has fewer than 400,000 annual employee work hours:

(1) Any train that transports passengers shall be equipped with a working radio in the occupied controlling locomotive and with redundant working wireless communications capability in the same manner as provided in paragraph (a) of this section.

(2) Any train that operates at greater than 25 miles per hour; or engages in joint operations on track where the maximum authorized speed for freight trains exceeds 25 miles per hour; or engages in joint operations on a track that is adjacent to and within 30 feet measured between track center lines of another track on which the maximum authorized speed for passenger trains exceeds 40 miles per hour, shall be equipped with a working radio in the occupied controlling locomotive.

(3) Any train that engages in joint operations, where the maximum authorized speed of the track is 25 miles per hour or less, shall be equipped with working wireless communications in the occupied controlling locomotive.

(4) Any train not described in paragraph (b) of this section that transports hazardous material required to be placarded under the provisions of part 172 of this title shall be equipped with working wireless communications in the occupied controlling locomotive.

### **§ 220.11 Requirements for roadway workers.**

(a) On and after July 1, 1999, the following requirements apply to a railroad that has 400,000 or more annual employee work hours:

(1) Maintenance-of-way equipment operating without locomotive assistance between work locations shall have

a working radio on at least one such unit in each multiple piece of maintenance-of-way equipment traveling together under the same movement authority. The operators of each additional piece of maintenance-of-way equipment shall have communications capability with each other.

(2) Each maintenance-of-way work group shall have intra-group communications capability upon arriving at a work site.

(b) On and after July 1, 1999, each employee designated by the employer to provide on-track safety for a roadway work group or groups, and each lone worker, shall be provided, and where practicable, shall maintain immediate access to a working radio. When immediate access to a working radio is not available, the employee responsible for on-track safety or lone worker shall be equipped with a radio capable of monitoring transmissions from train movements in the vicinity. A railroad with fewer than 400,000 annual employee work hours may provide immediate access to working wireless communications as an alternative to a working radio.

(c) This section does not apply to:

(1) Railroads which have fewer than 400,000 annual employee work hours, and which do not operate trains in excess of 25 miles per hour; or

(2) Railroad operations where the work location of the roadway work group or lone worker:

(i) Is physically inaccessible to trains; or

(ii) Has no through traffic or traffic on adjacent tracks during the period when roadway workers will be present.

#### **§ 220.13 Reporting emergencies.**

(a) Employees shall immediately report by the quickest means available derailments, collisions, storms, washouts, fires, obstructions to tracks, and other hazardous conditions which could result in death or injury, damage to property or serious disruption of railroad operations.

(b) In reporting emergencies, employees shall follow:

(1) The procedures of § 220.47 when using a radio; or

(2) The procedures specified for reporting emergencies in the railroad's

timetables or timetable special instructions, when using another means of wireless communications.

(c) Employees shall describe as completely as possible the nature, degree and location of the hazard.

(d) An alternative means of communications capability shall be provided whenever the control center is unattended or unable to receive radio transmissions during a period in which railroad operations are conducted.

### **Subpart B—Radio and Wireless Communication Procedures**

#### **§ 220.21 Railroad operating rules; radio communications; record-keeping.**

(a) The operating rules of each railroad with respect to radio communications shall conform to the requirements of this part.

(b) Thirty days before commencing to use radio communications in connection with railroad operations each railroad shall retain one copy of its current operating rules with respect to radio communications at the locations prescribed in paragraphs (b) (1) and (b)(2) of this section. Each amendment to these operating rules shall be filed at such locations within 30 days after it is issued. These records shall be made available to representatives of the Federal Railroad Administration for inspection and photocopying during normal business hours.

(1) Each Class I railroad, each Class II railroad, each railroad providing intercity rail passenger service, and each railroad providing commuter service in a metropolitan or suburban area shall retain such rules at each of its division headquarters and at its system headquarters; and (2) Each Class III railroad and any other railroad subject to this part but not subject to paragraph (b)(1) of this section shall retain such rules at the system headquarters of the railroad.

(c) For purposes of this section, the terms Class I railroad, Class II railroad, and Class III railroad have the meaning given these terms in 49 CFR Part 1201.

## **§ 220.23**

### **§ 220.23 Publication of radio information.**

Each railroad shall designate where radio base stations are installed, where wayside stations may be contacted, and the appropriate radio channels used by these stations in connection with railroad operations by publishing them in a timetable or special instruction. The publication shall indicate the periods during which base and wayside radio stations are operational.

### **§ 220.25 Instruction and operational testing of employees.**

Each employee who a railroad authorizes to use a radio in connection with a railroad operation, shall be:

(a) Provided with a copy of the railroad's operating rules governing the use of radio communication in a railroad operation;

(b) Instructed in the proper use of radio communication as part of the program of instruction prescribed in § 217.11 of this chapter; and

(c) Periodically tested under the operational testing requirements in § 217.9 of this chapter.

### **§ 220.27 Identification.**

(a) Except as provided in paragraph (c) of this section, the identification of each wayside, base or yard station shall include at least the following minimum elements, stated in the order listed:

(1) Name of railroad. An abbreviated name or initial letters of the railroad may be used where the name or initials are in general usage and are understood in the railroad industry; and

(2) Name and location of office or other unique designation.

(b) Except as provided in paragraph (c) of this section, the identification of each mobile station shall consist of the following elements, stated in the order listed:

(1) Name of railroad. An abbreviated name or initial letters of the railroad may be used where the name or initial letters are in general usage and are understood in the railroad industry;

(2) Train name (number), if one has been assigned, or other appropriate unit designation; and

(3) When necessary, the word "locomotive", "motorcar", or other unique

## **49 CFR Ch. II (10–1–06 Edition)**

identifier which indicates to the listener the precise mobile transmitting station.

(c) If positive identification is achieved in connection with switching, classification, and similar operations wholly within a yard, fixed and mobile units may use short identification after the initial transmission and acknowledgment consistent with applicable Federal Communications Commission regulations governing "Station Identification".

### **§ 220.29 Statement of letters and numbers in radio communications.**

(a) If necessary for clarity, a phonetic alphabet shall be used to pronounce any letter used as an initial, except initial letters of railroads. See appendix A of this part for the recommended phonetic alphabet.

(b) A word which needs to be spelled for clarity, such as a station name, shall first be pronounced, and then spelled. If necessary, the word shall be spelled again, using a phonetic alphabet.

(c) Numbers shall be spoken by digit, except that exact multiples of hundreds and thousands may be stated as such. A decimal point shall be indicated by the words "decimal," "dot," or "point." (See appendix B to this part, for a recommended guide to the pronunciation of numbers.)

### **§ 220.31 Initiating a radio transmission.**

BEFORE TRANSMITTING BY RADIO, AN EMPLOYEE SHALL:

(a) Listen to ensure that the channel on which the employee intends to transmit is not already in use;

(b) Identify the employee's station in accordance with the requirements of § 220.27; and

(c) Verify that the employee has made radio contact with the person or station with whom the employee intends to communicate by listening for an acknowledgment. If the station acknowledging the employee's transmission fails to identify itself properly, the employee shall require a proper identification before proceeding with the transmission.

**Federal Railroad Administration, DOT**

**§ 220.47**

**§ 220.33 Receiving a radio transmission.**

(a) Upon receiving a radio call, an employee shall promptly acknowledge the call, identifying the employee's station in accordance with the requirements of § 220.27 and stand by to receive. An employee need not attend the radio during the time that this would interfere with other immediate duties relating to the safety of railroad operations.

(b) An employee who receives a transmission shall repeat it to the transmitting party unless the communication:

- (1) Relates to yard switching operations;
- (2) Is a recorded message from an automatic alarm device; or
- (3) Is general in nature and does not contain any information, instruction or advice which could affect the safety of a railroad operation.

**§ 220.35 Ending a radio transmission.**

(a) Except for transmissions relating to yard switching operations, at the close of each transmission to which a response is expected, the transmitting employee shall say "over" to indicate to the receiving employee that the transmission is ended.

(b) Except for transmissions relating to yard switching operations, at the close of each transmission to which no response is expected, the transmitting employee shall state the employee's identification followed by the word "out" to indicate to the receiving employee that the exchange of transmissions is complete.

**§ 220.37 Testing radio and wireless communication equipment.**

(a) Each radio, and all primary and redundant wireless communication equipment used under §§ 220.9 and 220.11, shall be tested as soon as practicable to ensure that the equipment functions as intended prior to the commencement of the work assignment.

(b) The test of a radio shall consist of an exchange of voice transmissions with another radio. The employee receiving the transmission shall advise the employee conducting the test of the clarity of the transmission.

**§ 220.38 Communication equipment failure.**

(a) Any radio or wireless communication device found not to be functioning as intended when tested pursuant to § 220.37 shall be removed from service and the dispatcher or other employee designated by the railroad shall be so notified as soon as practicable.

(b) If a radio or wireless communication device fails on the controlling locomotive en route, the train may continue until the earlier of—

- (1) The next calendar day inspection, or
- (2) The nearest forward point where the radio or wireless communication device can be repaired or replaced.

**§ 220.39 Continuous radio monitoring.**

Each radio used in a railroad operation shall be turned on to the appropriate channel as designated in § 220.23 and adjusted to receive communications.

**§ 220.41 [Reserved]**

**§ 220.43 Radio communications consistent with federal regulations and railroad operating rules.**

Radio communication shall not be used in connection with a railroad operation in a manner which conflicts with the requirements of this part, Federal Communication Commission regulations, or the railroad's operating rules. The use of citizen band radios for railroad operating purposes is prohibited.

**§ 220.45 Radio communication shall be complete.**

Any radio communication which is not fully understood or completed in accordance with the requirements of this part and the operating rules of the railroad, shall not be acted upon and shall be treated as though not sent.

**§ 220.47 Emergency radio transmissions.**

An initial emergency radio transmission shall be preceded by the word "emergency," repeated three times. An emergency transmission shall have priority over all other transmissions and the frequency or channel shall be kept clear of non-emergency traffic for the

## § 220.49

duration of the emergency communication.

### **§ 220.49 Radio communication used in shoving, backing or pushing movements.**

When radio communication is used in connection with the shoving, backing or pushing of a train, locomotive, car, or on-track equipment, the employee directing the movement shall specify the distance of the movement, and the movement shall stop in one-half the remaining distance unless additional instructions are received. If the instructions are not understood, the movement shall be stopped immediately and may not be resumed until the misunderstanding has been resolved, radio contact has been restored, or communication has been achieved by hand signals or other procedures in accordance with the operating rules of the railroad.

### **§ 220.51 Radio communications and signal indications.**

(a) No information may be given by radio to a train or engine crew about the position or aspect displayed by a fixed signal. However, a radio may be used by a train crew member to communicate information about the position or aspect displayed by a fixed signal to other members of the same crew.

(b) Except as provided in the railroad's operating rules, radio communication shall not be used to convey instructions which would have the effect of overriding the indication of a fixed signal.

### **§ 220.61 Radio transmission of mandatory directives.**

(a) Each mandatory directive may be transmitted by radio only when authorized by the railroad's operating rules. The directive shall be transmitted in accordance with the railroad's operating rules and the requirements of this part.

(b) The procedure for transmission of a mandatory directive is as follows:

(1) The train dispatcher or operator shall call the addressees of the mandatory directive and state the intention to transmit the mandatory directive.

(2) Before the mandatory directive is transmitted, the employee to receive

## 49 CFR Ch. II (10–1–06 Edition)

and copy shall state the employee's name, identification, location, and readiness to receive and copy. An employee operating the controls of moving equipment shall not receive and copy mandatory directives. A mandatory directive shall not be transmitted to employees on moving equipment, if such directive cannot be received and copied without impairing safe operation of the equipment.

(3) A mandatory directive shall be copied in writing by the receiving employee in the format prescribed in the railroad's operating rules.

(4) After the mandatory directive has been received and copied, it shall be immediately repeated in its entirety. After verifying the accuracy of the repeated mandatory directive, the train dispatcher or operator shall then state the time and name of the employee designated by the railroad who is authorized to issue mandatory directives. An employee copying a mandatory directive shall then acknowledge by repeating the time and name of the employee so designated by the railroad.

(5)(i) For train crews, before a mandatory directive is acted upon, the conductor and engineer shall each have a written copy of the mandatory directive and make certain that the mandatory directive is read and understood by all members of the crew who are responsible for the operation of the train. Mandatory directives which have been fulfilled or canceled shall be marked with an "X" or in accordance with the railroad's operating rules, and retained for the duration of the train crew's work assignment.

(ii) For on-track equipment, before a mandatory directive is acted upon, the employee responsible for on-track safety shall have a written copy of the mandatory directive, and make certain that the mandatory directive is acknowledged by all employees who are responsible for executing that mandatory directive. The employee responsible for on-track safety shall retain a copy of the mandatory directive while it is in effect.

(6) A mandatory directive which has not been completed or which does not comply with the requirements of the railroad's operating rules and this part, may not be acted upon and shall be

## Federal Railroad Administration, DOT

## Pt. 220, App. C

treated as though not sent. Information contained in a mandatory directive may not be acted upon by persons other than those to whom the mandatory directive is addressed.

### APPENDIX A TO PART 220— RECOMMENDED PHONETIC ALPHABET

A—ALFA  
B—BRAVO  
C—CHARLIE  
D—DELTA  
E—ECHO  
F—FOXTROT  
G—GOLF  
H—HOTEL  
I—INDIA  
J—JULIET  
K—KILO  
L—LIMA  
M—MIKE  
N—NOVEMBER  
O—OSCAR  
P—PAPA  
Q—QUEBEC  
R—ROMEO  
S—SIERRA  
T—TANGO  
U—UNIFORM  
V—VICTOR  
W—WHISKEY  
X—XRAY  
Y—YANKEE  
Z—ZULU

The letter “ZULU” should be written as “Z” to distinguish it from the numeral “2”.

EDITORIAL NOTE: At 63 FR 11621, Mar. 10, 1998, an amendment was published amending footnote 1 to appendix A of part 220. The amendment could not be incorporated because footnote 1 to appendix A of part 220

does not exist in 49 CFR parts 200 to 399, revised as of Oct. 1, 1997.

### APPENDIX B TO PART 220—REC- OMMENDED PRONUNCIATION OF NU- MERALS

To distinguish numbers from similar sounding words, the word “figures” should be used preceding such numbers. Numbers should be pronounced as follows:

Number	Spoken
0 .....	ZERO.
1 .....	WUN.
2 .....	TOO.
3 .....	THUH-REE.
4 .....	FO-WER.
5 .....	FI-YIV.
6 .....	SIX.
7 .....	SEVEN.
8 .....	ATE.
9 .....	NINER.

(The figure ZERO should be written as “0” to distinguish it from the letter “O”. The figure ONE should be underlined to distinguish it from the letter “I”. When railroad rules require that numbers be spelled, these principles do not apply.)

The following examples illustrate the recommended pronunciation of numerals:

Number	Spoken
44 .....	FO-WER FO-WER.
500 .....	FI-YIV HUNDRED.
1000 .....	WUN THOUSAND.
1600 .....	WUN SIX HUNDRED.
14899 .....	WUN FO-WER ATE NINER NINER.
20.3 .....	TOO ZERO DECIMAL THUH-REE.

### APPENDIX C TO PART 220—SCHEDULE OF CIVIL PENALTIES <sup>1</sup>

Section	Violation	Willful violation
220.9 Requirements for trains .....	\$5,000	\$7,500
220.11 Requirements for roadway workers .....	5,000	7,500
220.21 Railroad Operating rules; radio communications.		
(a) .....	5,000	7,500
(b) .....	2,500	5,000
220.23 Publication of radio information .....	2,500	5,000
220.25 Instruction of employees .....	5,000	7,500
220.27 Identification .....	1,000	2,000
220.29 Statement of letters and numbers .....	1,000	2,000
220.31 Initiating a transmission .....	1,000	2,000
220.33 Receiving a transmission .....	1,000	2,000
220.35 Ending a transmission .....	1,000	2,000

<sup>1</sup>A penalty may be assessed against and only for a willful violation. The Administrator reserves the right to assess a penalty of up to \$27,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.



Section	Violation	Willful violation
220.37 Voice test .....	5,000	7,500
220.39 Continuous monitoring .....	2,500	5,000
220.41 [Reserved] .....		
220.43 Communication consistent with the rules .....	2,500	5,000
220.45 Complete communications .....	2,500	5,000
220.47 Emergencies .....	2,500	5,000
220.49 Switching, backing or pushing .....	5,000	7,500
220.51 Signal indications .....	5,000	7,500
220.61 Radio transmission of mandatory directives .....	5,000	7,500

[63 FR 47195, Sept. 4, 1998, as amended at 69 FR 30593, May 28, 2004]

## PART 221—REAR END MARKING DEVICE—PASSENGER, COMMUTER AND FREIGHT TRAINS

### Subpart A—General

Sec.

- 221.1 Scope.
- 221.3 Application.
- 221.5 Definitions.
- 221.7 Civil penalty
- 221.9 Waivers.
- 221.11 State regulation.

### Subpart B—Marking Devices

- 221.13 Marking device display.
- 221.14 Marking devices.
- 221.15 Marking device inspection.
- 221.16 Inspection procedure.
- 221.17 Movement of defective equipment.

APPENDIX A TO PART 221—PROCEDURES FOR APPROVAL OF REAR END MARKING DEVICES

APPENDIX B TO PART 221—APPROVED REAR END MARKING DEVICES

APPENDIX C TO PART 221—SCHEDULE OF CIVIL PENALTIES

AUTHORITY: 49 U.S.C. 20103, 20107; 28 U.S.C. 2461, note; and 49 CFR 1.49.

SOURCE: 42 FR 2321, Jan. 11, 1977, unless otherwise noted.

### Subpart A—General

#### § 221.1 Scope.

This part prescribes minimum requirements governing highly visible marking devices for the trailing end of the rear car of all passenger, commuter and freight trains. So long as these minimum requirements are met, railroads may adopt additional or more stringent requirements for rear end marking devices.

#### § 221.3 Application.

(a) Except as provided in paragraph (b) of this section, this part applies to passenger, commuter and freight trains when operated on a standard gage main track which is part of the general railroad system of transportation.

(b) This part does not apply to:

(1) A railroad that operates only trains consisting of historical or antiquated equipment for excursion, educational, or recreational purposes;

(2) A train that operates only on track inside an installation which is not part of the general railroad system of transportation;

(3) Rapid transit operations in an urban area that are not connected with the general railroad system of transportation.

(4) A railroad that operates only one train at any given time.

[42 FR 2321, Jan. 11, 1977, as amended at 53 FR 28600, July 28, 1988]

#### § 221.5 Definitions.

As used in this part:

(a) *Train* means a locomotive unit or locomotive units coupled, with or without cars, involved in a railroad operation conducted on a main track. It does not include yard movements.

(b) *Commuter train* means a short haul passenger train operating on track which is part of the general railroad system of transportation, within an urban, suburban or metropolitan area. It includes a passenger train provided by an instrumentality of a State or political subdivision thereof.

(c) *Locomotive* means a self-propelled unit of equipment designed for moving other equipment in revenue service and includes a self-propelled unit designed to carry freight or passenger traffic, or both.

## Federal Railroad Administration, DOT

## § 221.13

(d) *Main track* means a track, other than an auxiliary track, extending through yards or between stations, upon which trains are operated by timetable or train order or both, or the use of which is governed by a signal system.

(e) *Train order* means mandatory directives issued as authority for the conduct of a railroad operation outside of yard limits.

(f) *Red-orange-amber color range* means those colors defined by chromaticity coordinates, as expressed in terms of the International Commission on Illumination's 1931 Colorimetric System, which lie within the region bounded by the spectrum locus and lines defined by the following equations:

$X+Y=.97$  (white boundary)

$Y=X-.12$  (green boundary)

(g) *Administrator* means the Federal Railroad Administrator, the Deputy Administrator, or any official of the Federal Railroad Administration to whom the Administrator has delegated his authority under this part.

(h) *Effective intensity* means that intensity of a light in candela as defined by the Illuminating Engineering Society's Guide for Calculating the Effective Intensity of Flashing Signal Lights, November, 1964.

(i) *Qualified person* means any person who has the skill to perform the task and has received adequate instruction.

[42 FR 2321, Jan. 11, 1977; 42 FR 3843, Jan. 21, 1977, as amended at 51 FR 25185, July 10, 1986]

### § 221.7 Civil penalty.

Any person (an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: a railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least \$550 and not more than \$11,000 per violation, except that: Penalties may be assessed against individuals only for

willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed \$27,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. See appendix C to this part for a statement of agency civil penalty policy.

[53 FR 28600, July 28, 1988, as amended at 53 FR 52930, Dec. 29, 1988; 63 FR 11621, Mar. 10, 1998; 69 FR 30593, May 28, 2004]

### § 221.9 Waivers.

(a) A railroad may petition the Federal Railroad Administrator for a waiver of compliance with any requirement prescribed in this part.

(b) Each petition for a waiver under this section must be filed in the manner and contain the information required by part 211 of this chapter.

(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, he may grant the waiver subject to any condition he deems necessary. Notice of each waiver granted, including a statement of the reasons therefor, will be published in the FEDERAL REGISTER.

### § 221.11 State regulation.

Notwithstanding the provisions of this part, a State may continue in force any law, rule, regulation, order, or standard that was in effect on July 8, 1976, relating to lighted marking devices on the rear car of freight trains except to the extent that such law, rule, regulation, order, or standard would cause such cars to be in violation of this part.

## Subpart B—Marking Devices

### § 221.13 Marking device display.

(a) During the periods prescribed in paragraph (b) of this section, each train to which this part applies that occupies or operates on main track shall (1) be equipped with, (2) display on the trailing end of the rear car of that train, and (3) continuously illuminate or flash a marking device prescribed in this subpart.

#### § 221.14

#### 49 CFR Ch. II (10–1–06 Edition)

(b) Unless equipped with a functioning photoelectric cell activation mechanism complying with paragraph (c) of this section, the marking devices prescribed by this subpart shall be illuminated continuously or flash during the period between one hour before sunset and one hour after sunrise, and during all other hours when weather conditions so restrict visibility that the end silhouette of a standard box car cannot be seen from  $\frac{1}{2}$  mile on tangent track by a person having 20/20 corrected vision.

(c) Marking devices prescribed by this part and equipped with a functioning photoelectric cell activation mechanism shall illuminate or flash the device continuously when there is less than 1.0 candela per square meter of ambient light.

(d) The centroid of the marking device must be located at a minimum of 48 inches above the top of the rail.

[51 FR 25185, July 10, 1986]

#### § 221.14 Marking devices.

(a) As prescribed in § 221.13, passenger, commuter and freight trains shall be equipped with at least one marking device, which has been approved by the Federal Railroad Administrator in accordance with the procedures included in appendix A of this part, and which has the following characteristics:

(1) An intensity of not less than 100 candela nor more than 1000 candela (or an effective intensity of not less than 100 candela nor more than 1000 candela for flashing lights) as measured at the center of the beam width;

(2) A horizontal beam with a minimum arc width of fifteen (15) degrees each side of the vertical center line, and a vertical beam with a minimum arc width of five (5) degrees each side of the horizontal center line as defined in terms of the 50 candela intensity points;

(3) A color defined by the red-orange-amber color range; and

(4) If a flashing light is used, a flash rate of not less than once every 1.3 seconds nor more than once every .7 seconds.

(b) Marking devices used on passenger and commuter trains in compliance with paragraph (a) of this section

shall be lighted under the conditions prescribed in § 221.13 (b) and (c).

(c) When a locomotive is operated singly, or at the rear of a train, highly visible marking devices may be provided by the use of:

(1) At least one marking device that complies with paragraph (a) of this section; or

(2) At least one illuminated red or amber classification light on the rear of the locomotive, provided it complies with paragraph (a) of this section; or

(3) The rear headlight of the locomotive illuminated on low beam.

[51 FR 25185, July 10, 1986]

#### § 221.15 Marking device inspection.

(a) Each marking device displayed in compliance with this part shall be examined at each crew change point to assure that the device is in proper operating condition.

(b) This examination shall be accomplished either by visually observing that the device is functioning as required or that the device will function when required by either (1) repositioning the activation switch or (2) covering the photoelectric cell.

(c) This examination shall be conducted either by the train crew or some other qualified person, *Provided that*, if a non-train crewmember performs the examination, that person shall communicate his or her findings to the locomotive engineer of the new train crew.

(d) When equipped with a radio telemetry capability, a marker displayed in accordance with this part may be examined by observing the readout information displayed in the cab of the controlling locomotive demonstrating that the light is functioning as required in lieu of conducting a visual observation.

[51 FR 25185, July 10, 1986]

#### § 221.16 Inspection procedure.

(a) Prior to operating the activation switch or covering the photoelectric cell when conducting this test, a non-train crew person shall determine that he is being protected against the unexpected movement of the train either under the procedures established in part 218 of this chapter or under the

provisions of paragraph (b) of this section.

(b) In order to establish the alternative means of protection under this section, (1) the train to be inspected shall be standing on a main track; (2) the inspection task shall be limited to ascertaining that the marker is in proper operating condition; and (3) prior to performing the inspection procedure, the inspector shall personally contact the locomotive engineer or hostler and be advised by that person that they are occupying the cab of the controlling locomotive and that the train is and will remain secure against movement until the inspection has been completed.

[51 FR 25185, July 10, 1986]

#### **§ 221.17 Movement of defective equipment.**

(a) Whenever the marking device prescribed in this part becomes inoperative enroute, the train may be moved to the next forward location where the marking device can be repaired or replaced.

(b) Defective rolling equipment which, because of the nature of the defect, can be placed only at the rear of a train for movement to the next forward location at which repairs can be made need not be equipped with marking devices prescribed in this part.

(c) When a portion of a train has derailed, and a portable marking device is not available, the remainder of the train may be moved to the nearest terminal without being equipped with the marking device prescribed in this part.

#### **APPENDIX A TO PART 221—PROCEDURES FOR APPROVAL OF REAR END MARKING DEVICES**

As provided in § 221.15 of this part, marking devices must be approved by the Administrator. Approval shall be issued in accordance with the following procedures:

(a) Each submission for approval of a marking device consisting of lighted elements only shall contain the following information:

(1) A detailed description of the device including the type, luminance description, size of lens, manufacturer and catalog number, lamp manufacturer, lamp type and model number, and any auxiliary optics used.

(2) A certification, signed by the chief operating officer of the railroad, that—

(i) The device described in the submission has been tested in accordance with the current "Guidelines for Testing of FRA Rear End Marking Devices," copies of which may be obtained from the Office of Safety, Federal Railroad Administration, 2100 Second Street SW., Washington, DC 20590;

(ii) The results of the tests performed under paragraph (i) of this subsection demonstrate marking device performance in compliance with the standard prescribed in 49 CFR 221.15;

(iii) Detailed test records, including as a minimum the name and address of the testing organizations, the name of the individual in charge of the tests, a narrative description of the test procedures, the number of samples tested, and for each sample tested, the on-axis beam candela, the beam candela at the  $\pm 15$  degree points in the horizontal plane, the beam candela at the  $\pm 5$  degree points in the vertical plane, and the chromaticity coordinates, are maintained by the railroad and are available for inspection by the FRA at a designated location which is identified in the submission;

(iv) Marking devices of this type installed in the operating environment shall consist of the same type and model of components as were used in the samples tested for purposes of this approval submission.

(3) Unless otherwise qualified, acknowledgement of the receipt of the submission required by this section shall constitute approval of the device. The FRA reserves the right to review the test records maintained by the railroad, or to test independently any device submitted for approval under these procedures, and to withdraw the approval of such device at any time, after notice and opportunity for oral comment, if its performance in the operating environment fails to substantiate the test results or to comply with 49 CFR 221.15.

(b)(1) Each submission for approval of a marking device consisting of non-lighted elements or a combination of lighted and non-lighted elements shall contain the following information:

(i) A detailed description of the device including the type of material, the reflectance factor, the size of the device, and the manufacturer and catalogue number;

(ii) A detailed description of the external light source including the intensity throughout its angle of coverage, and the manufacturer and catalogue number;

(iii) A detailed description of the proposed test procedure to be used to demonstrate marking device compliance with the standard prescribed in 49 CFR 221.15, including any detailed mathematical data reflecting expected performance.

(2) FRA will review the data submitted under subsection (1) of this section, and in those instances in which compliance with 49

**Pt. 221, App. B**

**49 CFR Ch. II (10–1–06 Edition)**

CFR 221.15 appears possible from a theoretical analysis, the FRA will authorize and may take part in testing to demonstrate such compliance.

(3) Where authorized testing has demonstrated compliance with 49 CFR 221.15, a railroad shall submit a certification, signed by the chief operating officer of the railroad, that—

(i) The device described in the original submission has been tested in accordance with the procedures described therein;

(ii) The results of the tests performed under paragraph (i) of this subsection demonstrate marking device performance in compliance with the standard prescribed in 49 CFR 221.15;

(iii) Detailed test records, including as a minimum the name and address of the testing organization, the name of the individual in charge of the tests, a narrative description of the test procedure, a description of the external light source used, the number of samples tested, and for each sample tested, the on-axis beam candela, the beam candela at the  $\pm 15$  degree points in the horizontal plane, the beam candela at the  $\pm 15$  degree point in the vertical plane, and the chromaticity coordinates, are maintained by the railroad and are available for inspection by the FRA at a designated location which is identified in the submission;

(iv) Marking devices of this type installed in the operating environment and the external light source used to illuminate them shall consist of the same type and model of components as were used in the samples tested for purposes of this approval submission.

(4) Unless otherwise qualified, acknowledgement of the receipt of the submission required by this subsection shall constitute approval of the device. The FRA reserves the right to review the test records maintained by the railroad, or to test independently any device submitted for approval under these procedures, and to disapprove the use of such device at any time if its performance fails to comply with 49 CFR 221.15.

(c) Whenever a railroad elects to use a marking device which has been previously approved by the FRA, and is included in the current list in appendix B to this part, the submission shall contain the following information:

(1) The marking device model designation as it appears in appendix B.

(2) A certification, signed by the chief operating officer of the railroad that—

(i) Marking devices of this type installed in the operating environment shall consist of the same type and model of components as were used in the samples tested for the original approval.

(d) Each submission for approval of a marking device shall be filed in triplicate with the Office of Standards and Procedures, Office of Safety, Federal Railroad Adminis-

tration, 2100 Second Street SW., Washington, DC 20590.

[42 FR 62004, Dec. 8, 1977]

**APPENDIX B TO PART 221—APPROVED  
REAR END MARKING DEVICES**

**PART I—APPROVED DEVICES TESTED FOR OR BY  
MANUFACTURERS**

1. Manufacturer: Star Headlight & Lantern Co., 168 West Main Street, Honeoye Falls, NY 14472.

FRA identification Nos. FRA-PLE-STAR-845-F (flasher) and FRA-PLE-STAR-845-C (steady burn).

2. Manufacturer: Julian A. McDermott Corp., 1639 Stephen Street, Ridgewood, Long Island, NY 11227.

FRA identification Nos. FRA-MEC-MCD-100-C (steady burn), FRA-MEC-MCD-100-F (flasher), FRA-MEC-MCD-300-C (steady burn), and FRA-MEC-MCD-300-F (flasher).

3. Manufacturer: American Electronics, Inc.,<sup>1</sup> 40 Essex Street, Hackensack, NJ 07601.

FRA identification Nos. FRA-DRGW-YANK-300 (portable strobe), FRA-WP-YANK-301R (flashing), FRA-WP-YANK-305R (flashing), and FRA-WP-YANK-306R (steady burn).

**PART II—APPROVED DEVICES TESTED FOR OR BY  
RAIL CARRIERS**

1. Carrier: Atchison, Topeka & Santa Fe Railway Co., Technical Research & Development Department, 1001 Northeast Atchison Street, Topeka, Kans. 66616.

Manufacturer: Trans-Lite, Inc., P.O. Box 70, Milford, Conn. 06460.

FRA identification Nos. FRA-ATSF-TL-875-150, FRA-ATSF-TL-875-60, FRA-ATSF-TL-875-4412, and FRA-ATSF-TL-200.

2. Carrier: Amtrak—National Railroad Passenger Corporation, 400 North Capitol Street NW., Washington, DC 20001.

Manufacturer: (a) Trans-Lite, Inc., P.O. Box 70, Milford, Conn. 06460.

FRA identification Nos. FRA-ATK-TL-3895-1, FRA-ATK-TL-4491-2, FRA-ATK-TL-4491-3, and FRA-ATK-TL-FM-4491-1.

Manufacturer: (b) Luminator Division of Gulfon Industries, Inc., 1200 East Dallas North Parkway, Plano, Tex. 75074.

FRA identification No. FRA-ATK-LUM-0101890-001.

Manufacturer: (c) Whelen Engineering Co., Inc., Deep River, Conn. 06417.

FRA identification No. FRA-ATK-WHE-WERT-12.

[43 FR 36447, Aug. 17, 1978]

<sup>1</sup>NOTE: Yankee Metal Products Corp. previously produced these devices.

## Federal Railroad Administration, DOT

## Pt. 222

### APPENDIX C TO PART 221—SCHEDULE OF CIVIL PENALTIES<sup>1</sup>

Section	Violation	Willful violation
221.13 Marking device display: (a) device not present, not displayed, or not properly illuminated (d) device too close to rail .....	\$5,000 1,000	\$7,500 2,000
221.14 Marking devices: Use of unapproved or noncomplying device .....	2,500	5,000
221.15 Marking device inspection: (a) Failure to inspect at crew change .....	2,500	5,000
(b), (c) improper inspection .....	2,500	5,000
221.16 Inspection procedure: (a) Failure to obtain protection .....	5,000	7,500
(b) Improper protection .....	2,500	5,000
221.17 Movement of defective equipment .....	( <sup>1</sup> )	( <sup>1</sup> )

[53 FR 52930, Dec. 29, 1988, as amended at 69 FR 62818, Oct. 28, 2004]

## PART 222—USE OF LOCOMOTIVE HORNS AT PUBLIC HIGHWAY-RAIL GRADE CROSSINGS

### Subpart A—General

Sec.

- 222.1 What is the purpose of this regulation?
- 222.3 What areas does this regulation cover?
- 222.5 What railroads does this regulation apply to?
- 222.7 What is this regulation's effect on State and local laws and ordinances?
- 222.9 Definitions.
- 222.11 What are the penalties for failure to comply with this regulation?
- 222.13 Who is responsible for compliance?
- 222.15 How does one obtain a waiver of a provision of this regulation?
- 222.17 How can a State agency become a recognized State agency?

### Subpart B—Use of Locomotive Horns

- 222.21 When must a locomotive horn be used?

<sup>1</sup>A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to \$27,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A. Where the conditions for movement of defective equipment set forth in §221.17 of this part are not met, the movement constitutes a violation of §221.13 of this part.

- 222.23 How does this regulation affect sounding of a horn during an emergency or other situations?

- 222.25 How does this rule affect private highway-rail grade crossings?

- 222.27 How does this rule affect pedestrian grade crossings?

### Subpart C—Exceptions to the Use of the Locomotive Horn

- 222.31 [Reserved]

#### SILENCED HORNS AT INDIVIDUAL CROSSINGS

- 222.33 Can locomotive horns be silenced at an individual public highway-rail grade crossing which is not within a quiet zone?

#### SILENCED HORNS AT GROUPS OF CROSSINGS—QUIET ZONES

- 222.35 What are minimum requirements for quiet zones?

- §222.37 Who may establish a quiet zone?

- §222.38 Can a quiet zone be created in the Chicago Region?

- §222.39 How is a quiet zone established?

- §222.41 How does this rule affect Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones?

- §222.42 How does this rule affect Intermediate Quiet Zones and Intermediate Partial Quiet Zones?

- §222.43 What notices and other information are required to create or continue a quiet zone?

- §222.45 When is a railroad required to cease routine sounding of locomotive horns at crossings?

- §222.47 What periodic updates are required?

- §222.49 Who may file Grade Crossing Inventory Forms?

- §222.51 Under what conditions will quiet zone status be terminated?

- §222.53 What are the requirements for supplementary and alternative safety measures?

- §222.55 How are new supplementary or alternative safety measures approved?

- §222.57 Can parties seek review of the Associate Administrator's actions?

- §222.59 When may a wayside horn be used?

#### APPENDIX A TO PART 222—APPROVED SUPPLEMENTARY SAFETY MEASURES

#### APPENDIX B TO PART 222—ALTERNATIVE SAFETY MEASURES

#### APPENDIX C TO PART 222—GUIDE TO ESTABLISHING QUIET ZONES

#### APPENDIX D TO PART 222—DETERMINING RISK LEVELS

#### APPENDIX E TO PART 222—REQUIREMENTS FOR WAYSIDE HORNS

#### APPENDIX F TO PART 222—DIAGNOSTIC TEAM CONSIDERATIONS

#### APPENDIX G TO PART 222—SCHEDULE OF CIVIL PENALTIES